ASN (RDA)
CHIEF ENGINEER

Naval Collaborative Engineering Environment Applications

28-30 June 2005

Ms. Barbara Vaughn
RDA CHENG NCEE Director

Topics

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- CHENG Organization
- NCEE Purpose
- NCEE Functions
- NCEE Ongoing Activities

"We need to create a high performing organization that collaborates across the entire Navy community."

Secretary John Young

"To foster cross-organizational collaboration for SE, the SE community needs standard tools and web-based means to enable collaboration…"

OSD Town Meeting Recommendation

Purpose of NCEE Directorate

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- To provide an integrated digital environment that:
  - Enhances the cooperation and exchange of data, information, and knowledge among Naval stakeholders engaged in activities directed toward assuring integrated and interoperable Naval force systems.
  - Enables the integration and interoperability of Naval force systems across the spectrum of the Naval acquisition process.

Based on Both E-Business and E-Systems Engineering Capabilities

Notional Operational Concept

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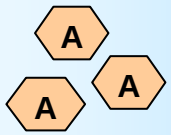
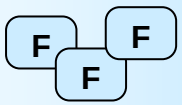
Concept Exploration

Component Authenticated Databases

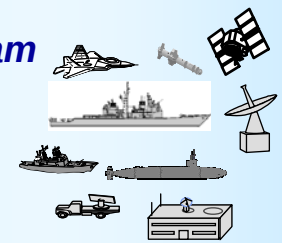
Common Operation Activities



Common Function Elements

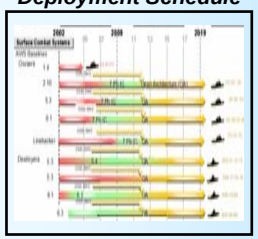


Common Program Information



- Platforms & Systems characteristics (e.g., performance, timing & interface)
- Program Schedule
- Direct from PEO/PM or through SYSCOM consolidate sources

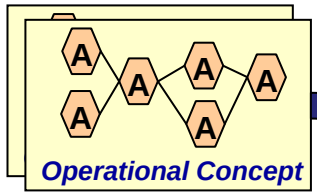
Deployment Schedule

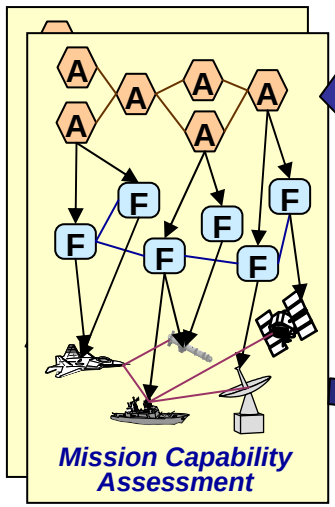


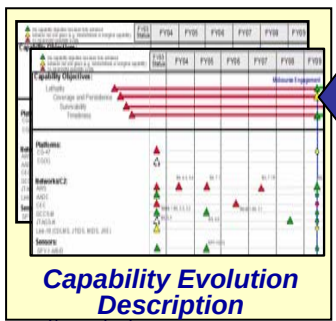
NETWARCOM

SEA SHIELD / SEA STRIKE / SEABASING / FORCENET

ACQUISITION DECISION







Concept Authenticated Databases

- Operational Concept
- Mission Areas Integrated Architecture Baseline
  - Tool specific
  - Tool neutral
- Capability Assessment
  - Objectives
  - Metrics
- Capability Evolution Description
- Assessment Models
  - Tool specific
  - Tool neutral
- Assessment Results
- Policies Compliance

Naval Collaborative Engineering Environment

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Integrated Engineering Environment

OPNAV

RDA CHENG

SYSCOMS

PEOs/ PMs

Labs

NAVAL CEE

JFCOM

TTCP

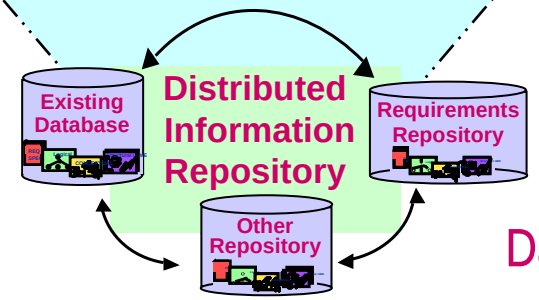
CFFC

Joint Services

Decision Support Environment (Desktop)

- Classified/Unclassified Connectivity
- Information Assurance

- Leverage Existing Infrastructure
- NMCI Reliance



Interoperability
Data Mgmt & Analysis

Classified and Unclassified Connectivity to Enable Stakeholder Collaboration

NCEE Website and Workspace Applications

FORCENet Implementation Tool Workspace

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Individual or Nested Workspaces For Workgroups

ASN RDA CHENG Tools Access

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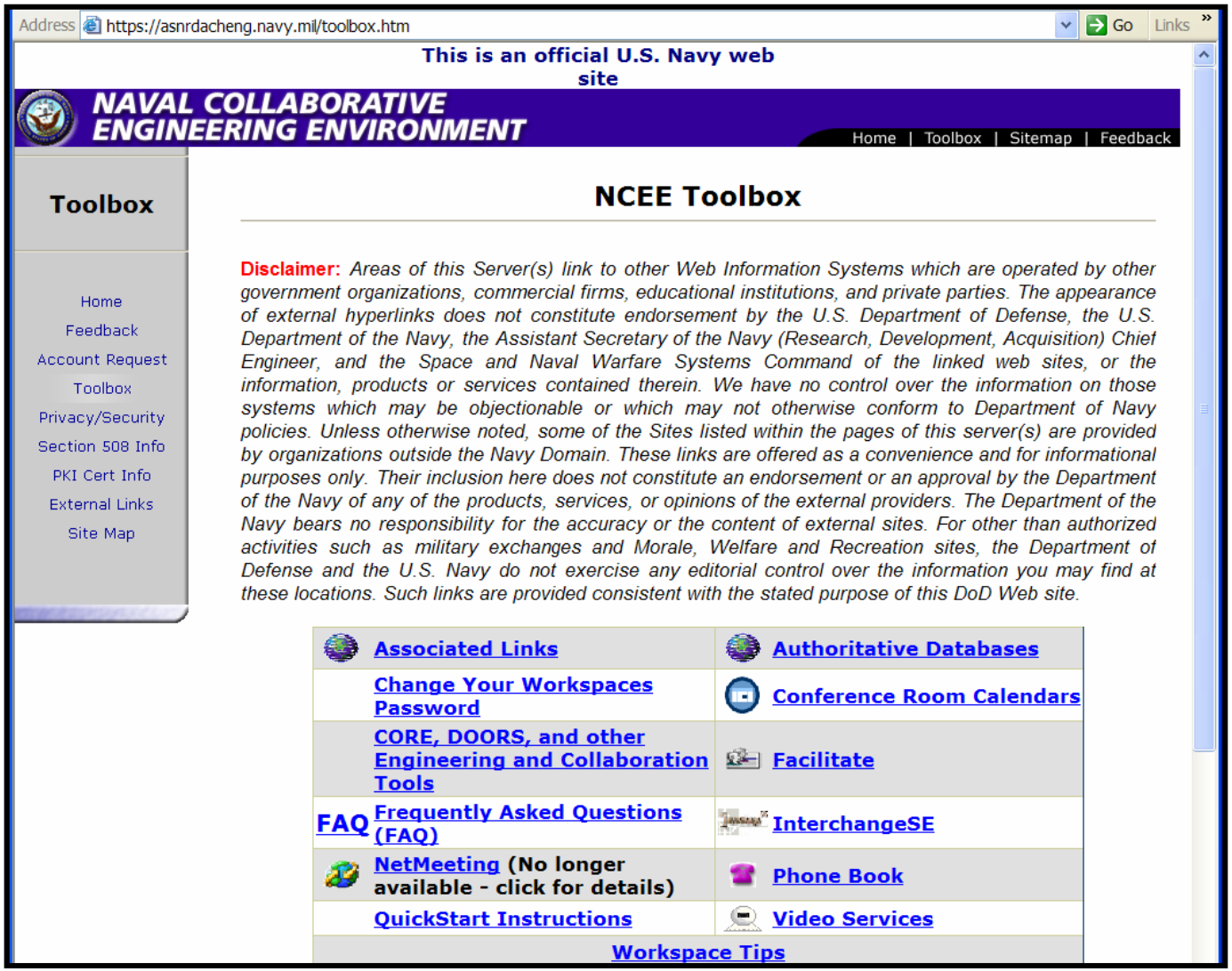

Integrated Naval Collaborative Capabilities

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- Unite existing collaborative capabilities under a domain independent framework
  - Website and Workspaces
  - Tools and applications sharing
- Jointly define a long-term strategy for naval-wide collaborative capabilities

NCEE Tools/Databases Integration Applications

NCEE IEE Components

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Requirement Documents

SPG
MNS
ORD
SPD

Requirement Analysis & Verification

DOORS
NTIRA

Structured Requirements

Authoritative Data Bases

AMPS
IDR
DARS

Architecture Information

Experimental Data
System Data
Interface Data

Architecture Representation

Rational Rose
System Architect
iUML

Operational View
System View
Technical View

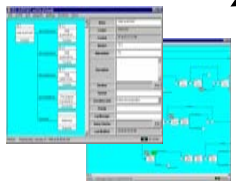
Function Information

Activity Model
Functional Model
Simulation Model

Functional Analysis & Allocation

CORE

Functional Baselines



Interchange (Server)

Mission Analysis

NSS

CHENG Repository

- Life Cycle Traceability
- Change Agent Notification
- System Representation
- Configuration Management
- Tools Integration

LSSE Analysis

COPAT
RAB
RCA

M&S
COST MODELS
HSI
ENVISION/ERGO

Physical Implementation Information

Systems Spec
Resource Constraint

Design Synthesis

Interchange Client
CAD/CAM

IEE Repository Data View

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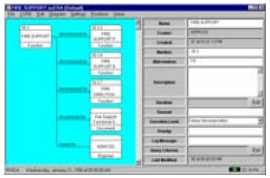
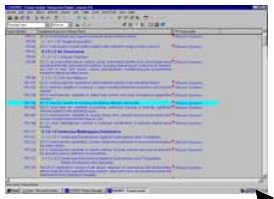
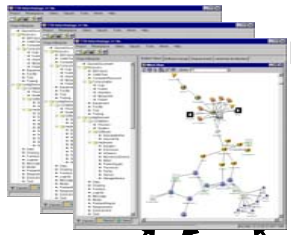
Function Analysis (CORE)



Requirement Analysis (DOORS)

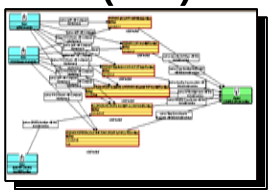


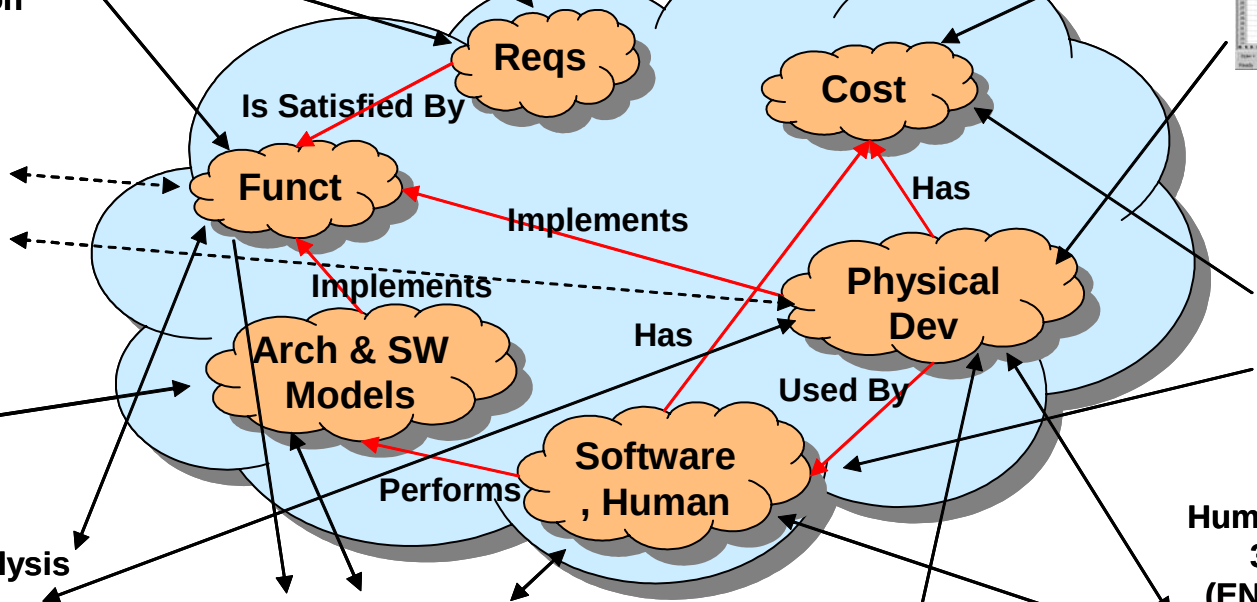


Data Repository Clients (Interchange)

System Cost (VAMOSC)

Multi-Warfare Mission Simulation (NSS)

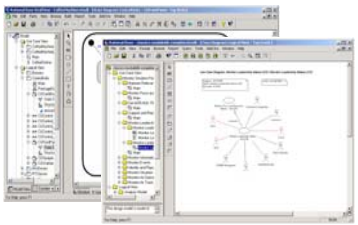




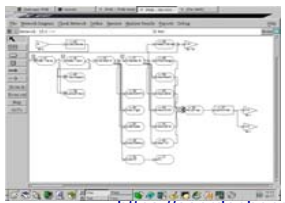
Architectures (System Arch, DARS)

Manning Cost (COMET)

Object-Oriented Analysis (Rose/RoseRT)



Human Performance Modeling (IPME)



AMPS

Human/Environment 3D Modeling (ENVISION/ERGO)

Interchange^{SE} Information Repository

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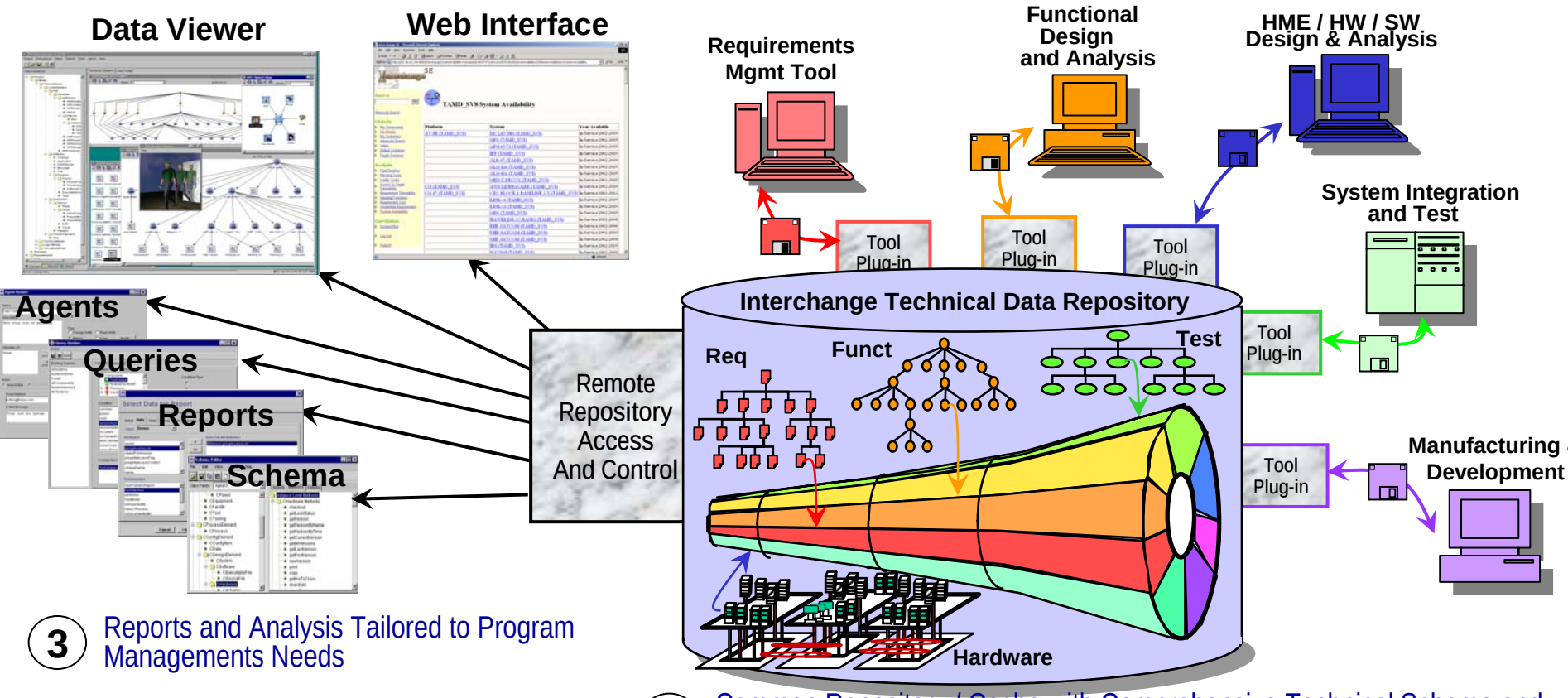
4 Controlled Secure Remote Access for Distributed Team Members

1 Access to Technical Data from Across the Program



3 Reports and Analysis Tailored to Program Managements Needs

2 Common Repository / Cache with Comprehensive Technical Schema and Bi-Directional Translators for Program Tools

Interchange Integrates Program Data While Enabling Use of Existing and Emerging Tools and Processes

NAVAIR-MARCORP Data Integration Pilot Project

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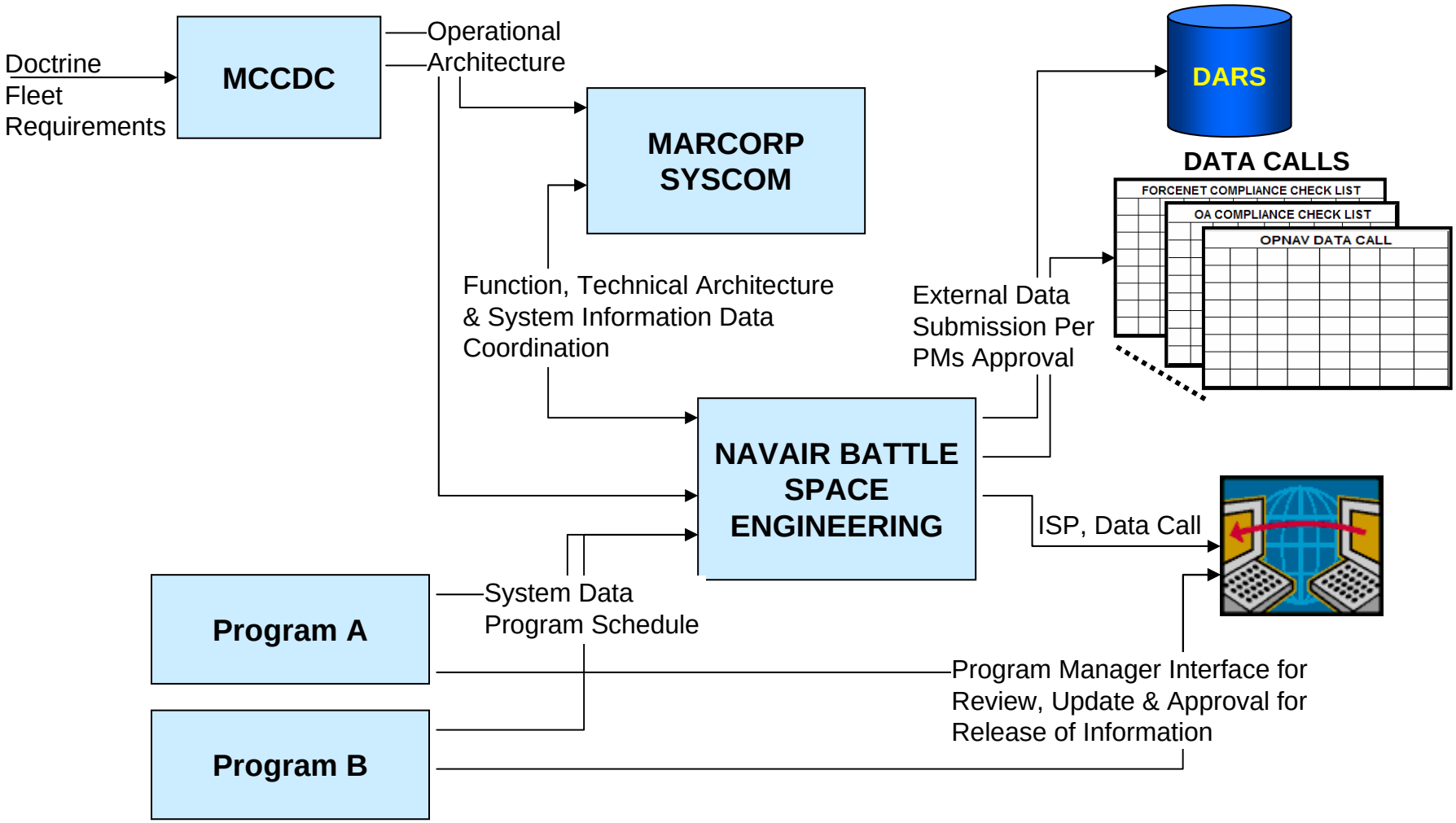

MCCDC/MCASE – NAVAIR Data Integration Status

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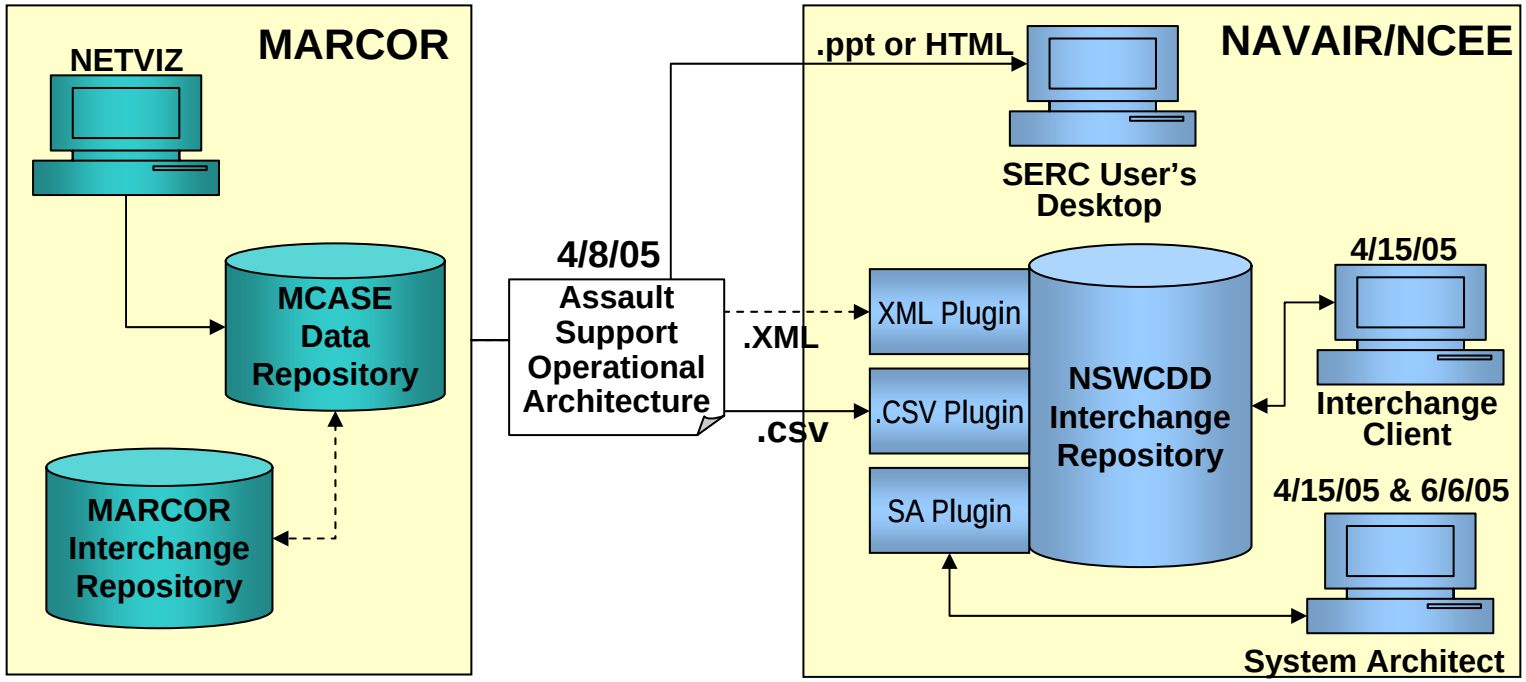

Phase I – April 2005

- Conducted NCEE training
- Successfully executed data exchange mechanism (Netviz Excel format to Interchange to XML System Architect)
- Detected missing data content
- XML format data is not available for testing

Phase II – June 2005

- Defined data requirements for MCCDC
- Conducted a second data pull from MCCDC and made available to NAVAIR in System Architect format

DARS CADM XML Certification

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- Phase 1 certification requirements include import/export capability in CADM XML format for AV-1, OV-2, OV-3, OV-5, SV-1 and TV-1
  - NCEE successfully passed OV-5 import/export and OV-2 and AV-1 import
  - Expect to complete phase 1 certification in August
- Phase 2 certification requirements include import/export capability in CADM XML format for AV-1, OV-2, OV-3, OV-5, SV-1, TV-1, AV-2, OV-6c, SV-2, SV-3, SV-4, SV-5, SV-6 and SV-10c
  - The number of tables covered under phase 2 has not been released
  - For the completion of each certification phase, a product is required to cover 434 tables

Integrating Simulation & Analysis Across Acquisition Life Cycle Concept

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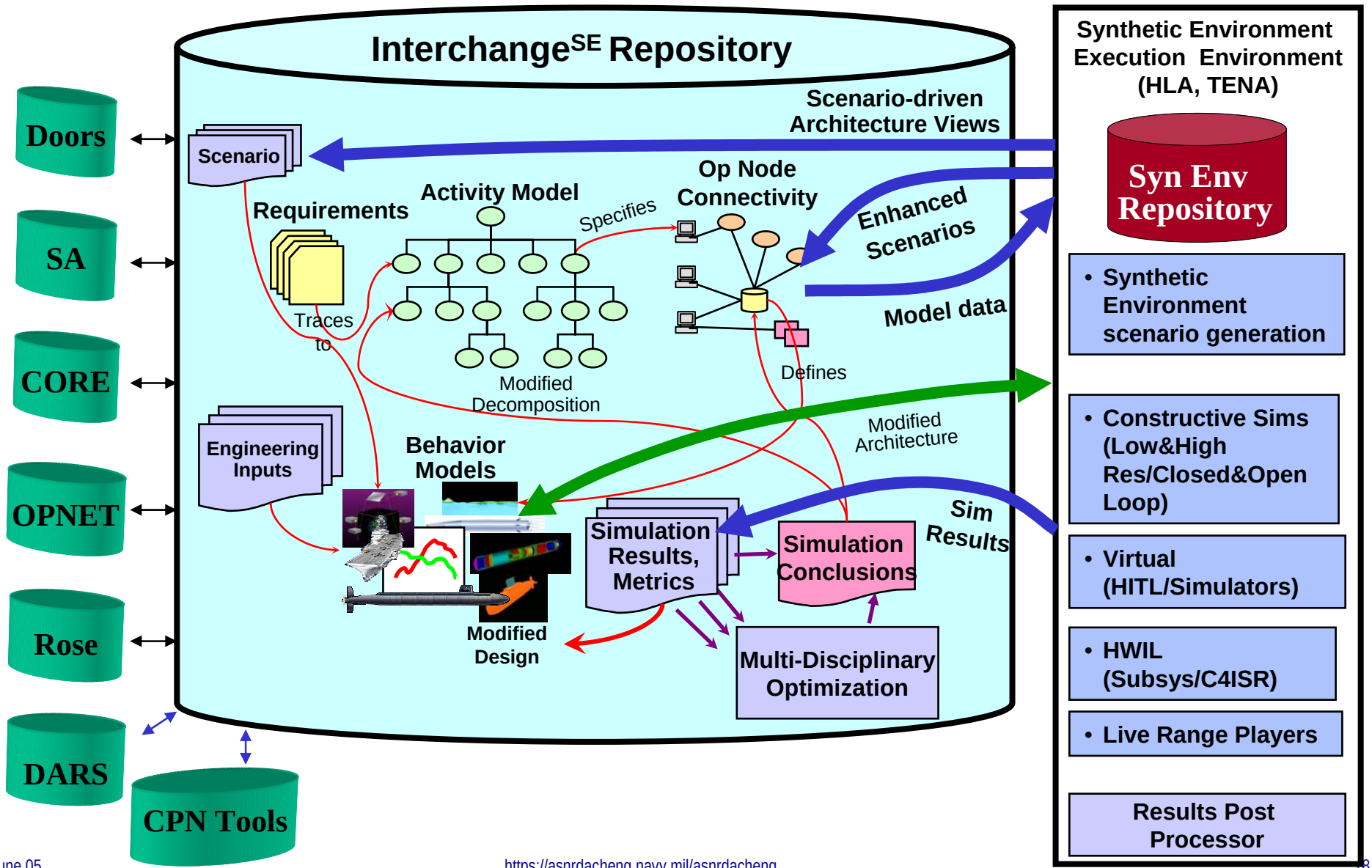

NCEE Web Service / Web Enable Applications

CFFC-NCEE Data Exchange Implementation Concept

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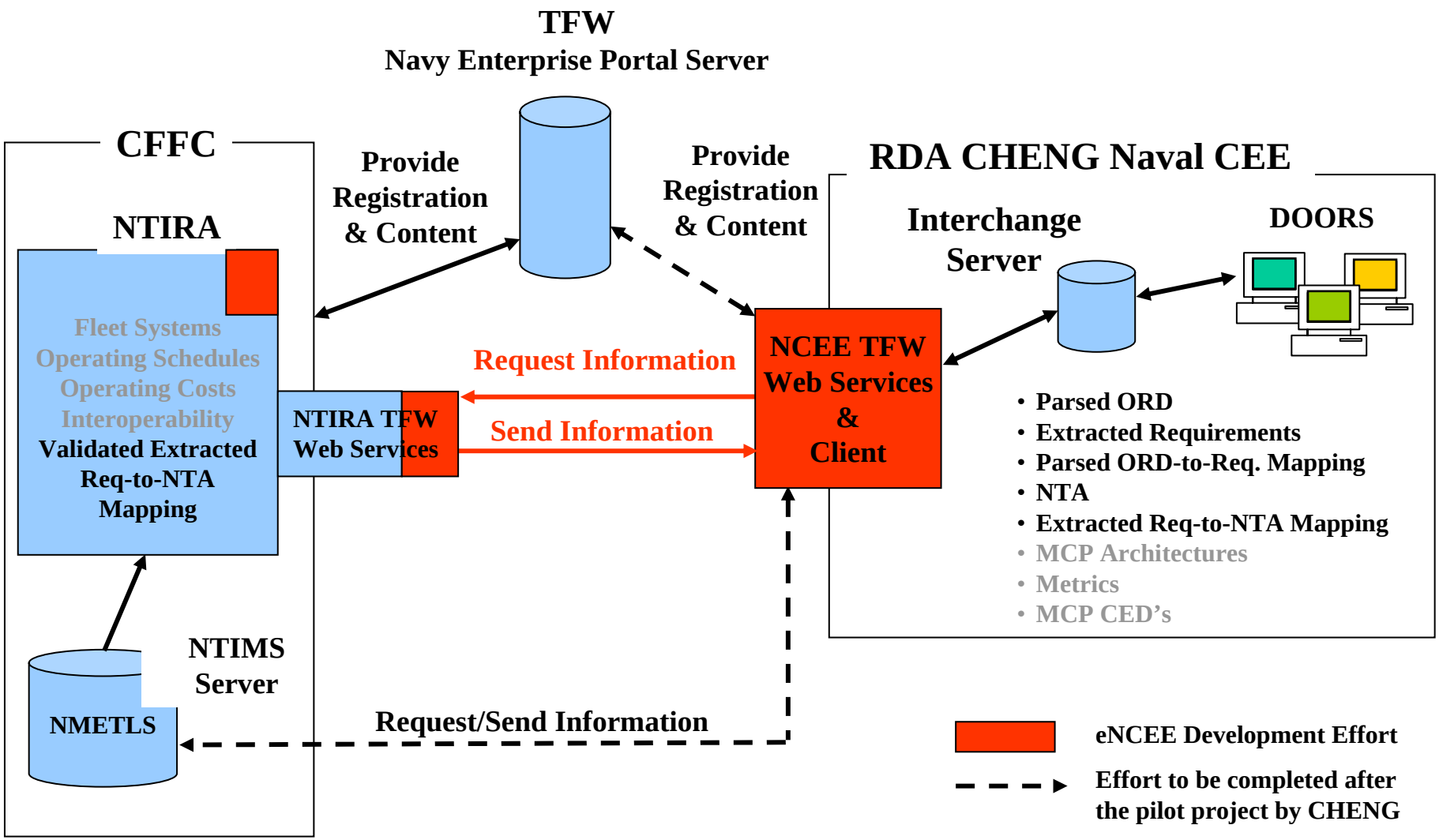

CFFC-NCEE Data Exchange Physical Connections

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Web Browser

FIREWALL

FIREWALL

Web Browser

FIREWALL

FIREWALL

Apache Tomcat WebServer

certificate

Web Services

Weblogic WebServer

certificate

FIREWALL

SIPRNET

FIREWALL

Interchange^{SE} Server

Jasmine

NTIRA

Direct

Interchange^{SE} Client

Dahlgren

Charleston

Web Access Example – NCEE CSFL

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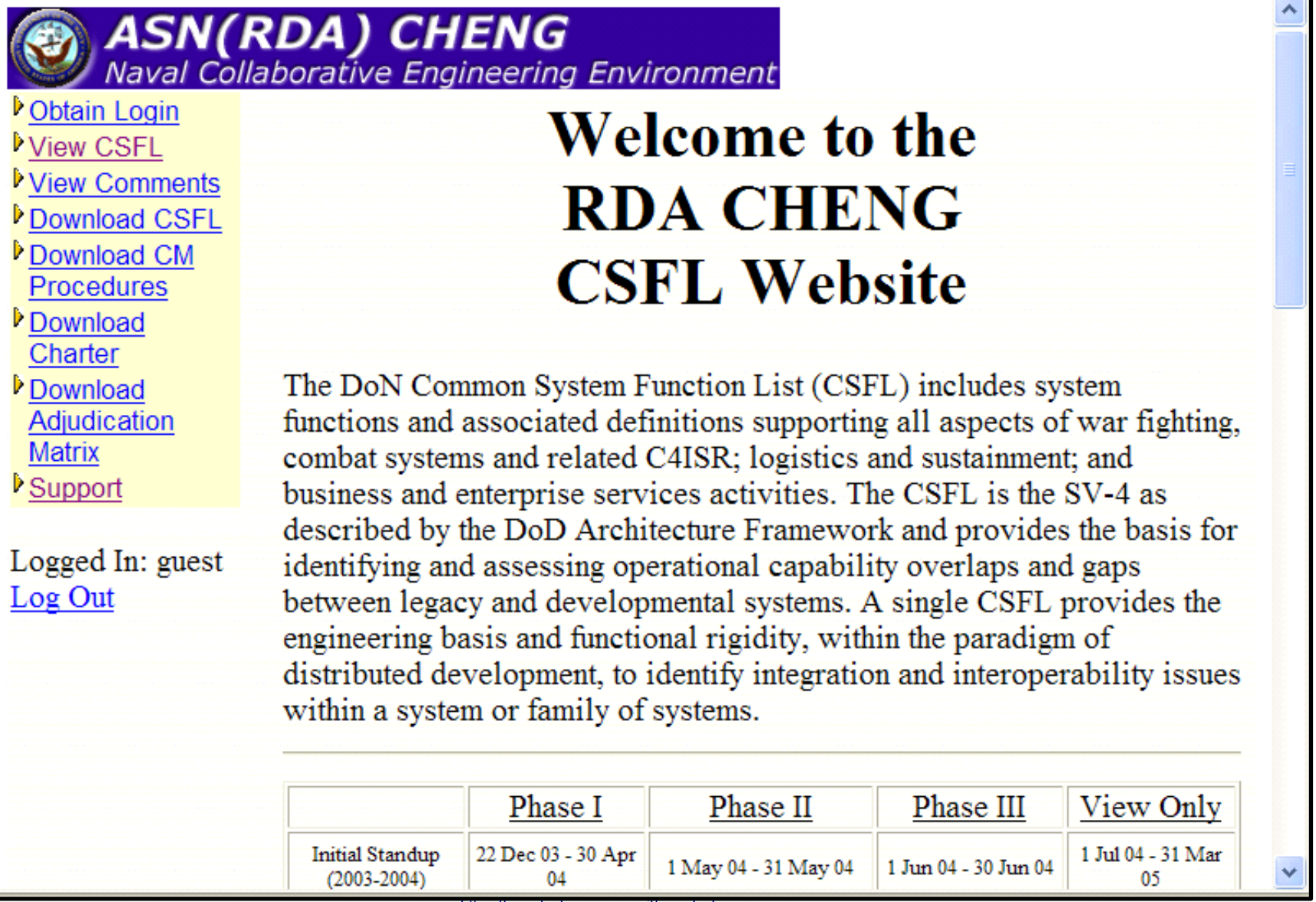

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Naval Collaborative Engineering Environment

- Obtain Login
- View CSFL
- View Comments
- Download CSFL
- Download CM Procedures
- Download Charter
- Download Adjudication Matrix
- Support

Logged In: guest
Log Out

Welcome to the RDA CHENG CSFL Website

The DoN Common System Function List (CSFL) includes system functions and associated definitions supporting all aspects of war fighting, combat systems and related C4ISR; logistics and sustainment; and business and enterprise services activities. The CSFL is the SV-4 as described by the DoD Architecture Framework and provides the basis for identifying and assessing operational capability overlaps and gaps between legacy and developmental systems. A single CSFL provides the engineering basis and functional rigidity, within the paradigm of distributed development, to identify integration and interoperability issues within a system or family of systems.

	Phase I	Phase II	Phase III	View Only
Initial Standup (2003-2004)	22 Dec 03 - 30 Apr 04	1 May 04 - 31 May 04	1 Jun 04 - 30 Jun 04	1 Jul 04 - 31 Mar 05

Information Disclosure

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ASN(RDA) CHE
Naval Collaborative Enginee

- Main Menu
- Support

System Functions

To search tree, 'Expand All' then use your browser's 'Find' feature.

- 1.0 Combat
  - 1.1 Sense
  - 1.2 Command
  - 1.3 Act
  - 1.4 Interoperate
- 2.0 Sustainment
- 3.0 Business
- 4.0 Enterprise Application Support Services
- 5.0 Enterprise System Services

Expand All | Collapse All

Definition Source: SIAP

1.2 Command

0 Comments

Definition

Support and perform decision-making processes that effectively and efficiently direct the force(s) under command, and that support employment of offensive and defensive weapons.

Input Submission

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Evaluation Disclosure

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Number	Function	Comment Type	Proposed Action	Old Definition	Proposed Definition or Change	Rationale	Recommendation
1.0	Combat	Significant	Change Definition	Directly support combat and mission operations	Provide functionality, environment, and tools to perform efficient management of combat systems. Functions include performance monitoring, fault localization, system recovery, system reconfiguration, and Information Assurance (including security, access controls, physical security, etc).		Do not concur. Recommended definition is not complete and does not accurately match the subfunctions.
1.1.1.1	Search	Administrative	Delete Function.	Observe an area of interest either passively, looking for energy emissions that conform to expected signals of interest, or actively, transmitting energy to detect objects of potential interest.	Search should be deleted and rolled up into 1.1.1 Single Sensor Sense, which should become Search. There is only one 4th level subfunction under 1.1.1, so 1.1.1.1 should be eliminated.		Concur with change.
1.1.1.1	Search	Significant	Change Definition	Observe an area of interest either passively, looking for energy emissions that conform to expected signals of interest, or actively, transmitting energy to detect objects of potential interest.	Observe / sense ambient environment (i.e. water depth, sound velocity profile, salinity) to determine sensor capabilities, range of the day, predict detection / counter-detection probabilities, etc. Observe / sense self-noise and determine vulnerability to counter-detection by expected combatants.		Do not concur. Recommended definition is too specific for "Search."
1.1.1.1.1.2	Process Underwater Signals	Minor	Change Definition	Process underwater signals to filter noise, ECM, and clutter, improve signal-to-interference ratio, amplify, or otherwise improve signals for reception, retransmission, or conversion to another format.	Process underwater signals to filter noise, counter measures, and clutter, improve signal-to-interference ratio, amplify, or otherwise improve signals for reception, retransmission, or conversion to another format.	ECM not meaningful underwater	Concur with change.
1.1.1.1.1.2	Process Underwater Signals	Minor	Global definition change.	N/A	Global document change for signal processing.) Change the phrase "conversion to another format" to "conversion to more tactically descriptive and useful information."		Concur with change.
1.1.1.1.1.4	ECM Signal Recognition	Minor	Change Function Name	Determine existence of ECM within measurements.	Change 1.1.1.1.1.4 ECM Signal Recognition to Counter Measures Signal Recognition	ECM not meaningful underwater	Concur with change.

Policy Tool Prototype Web Access

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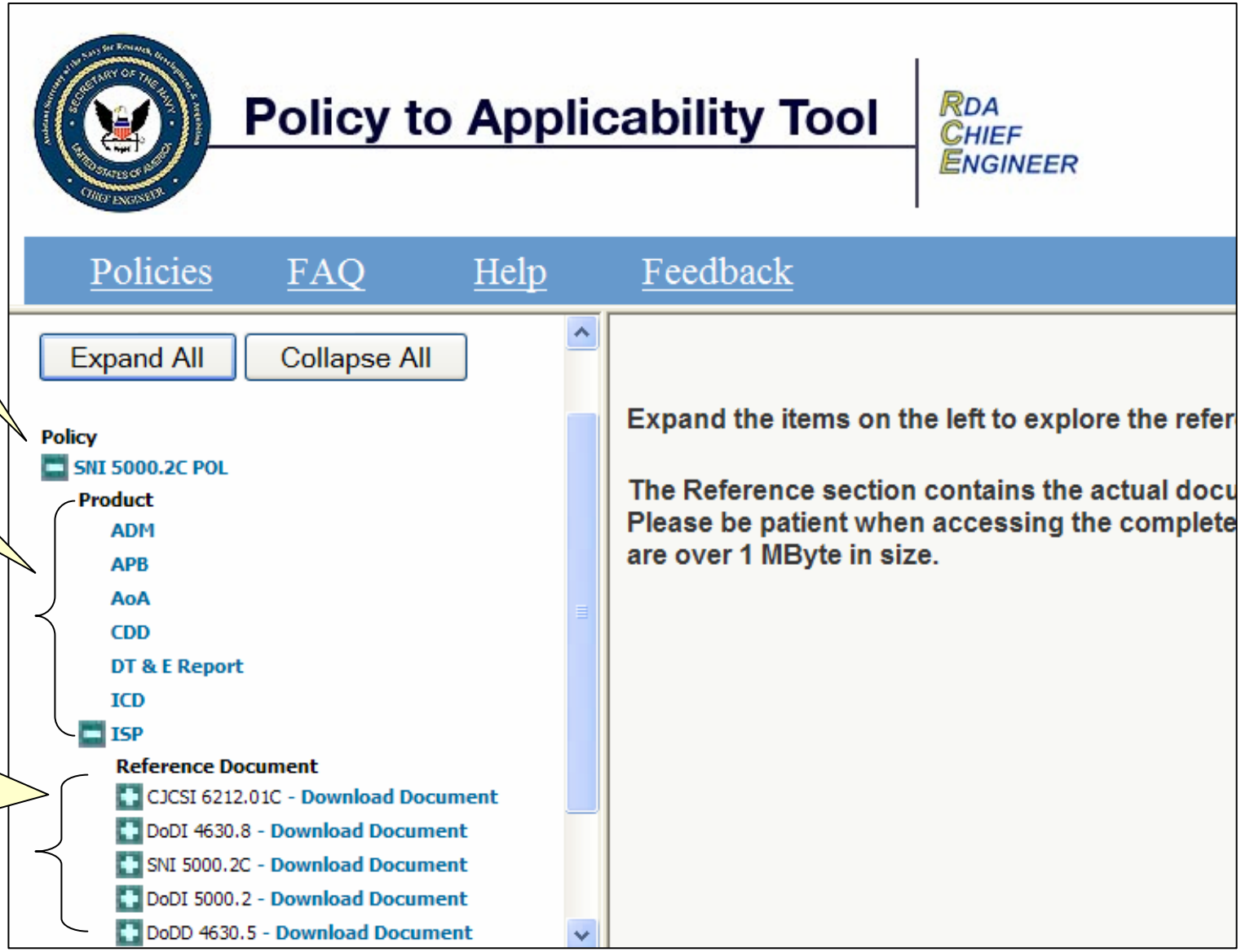

Policy Name

Required Products From Policy

Policy References Related to The Same Product

NCEE Information Management Applications

Facilitate Navy Wide Data Management and Collaboration

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- Information Management Summit conducted in March 2005
  - Conducted survey on data call issues
  - Identified information management problem domain
  - Established workspace to facilitate discussions
  - Discussion topics
    - Naval collaborative operational process
    - Data collection standardization process
    - Data Taxonomy
- Post Information Management Summit progress
  - Draft Information Management IPT Charter available for review
  - Planning for the second IMS
  - Identifying pilot projects to resolve long and short- term information management issues

Requirements Allocation & Traceability Example

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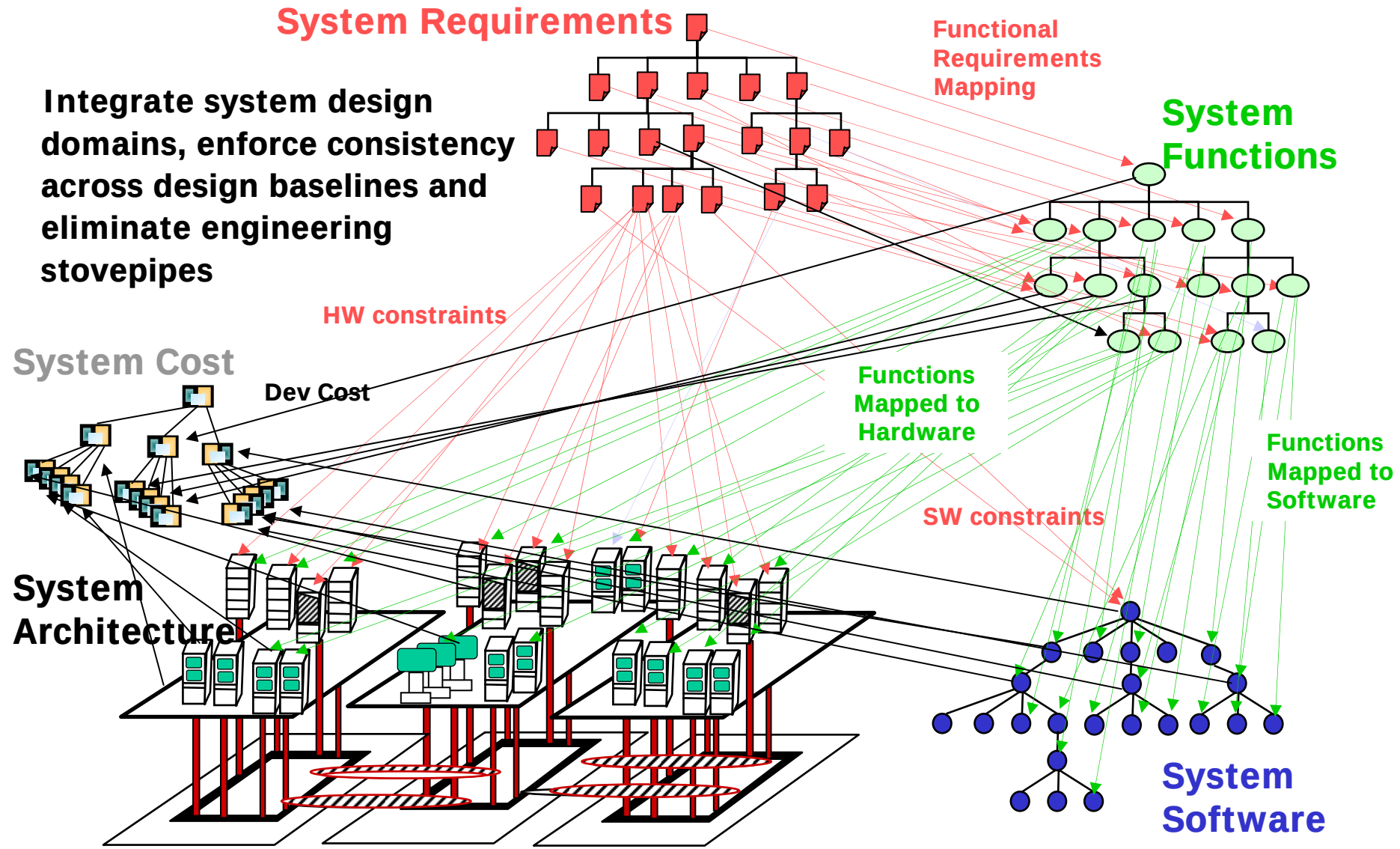

Schema Development Approach and Key Schema Products

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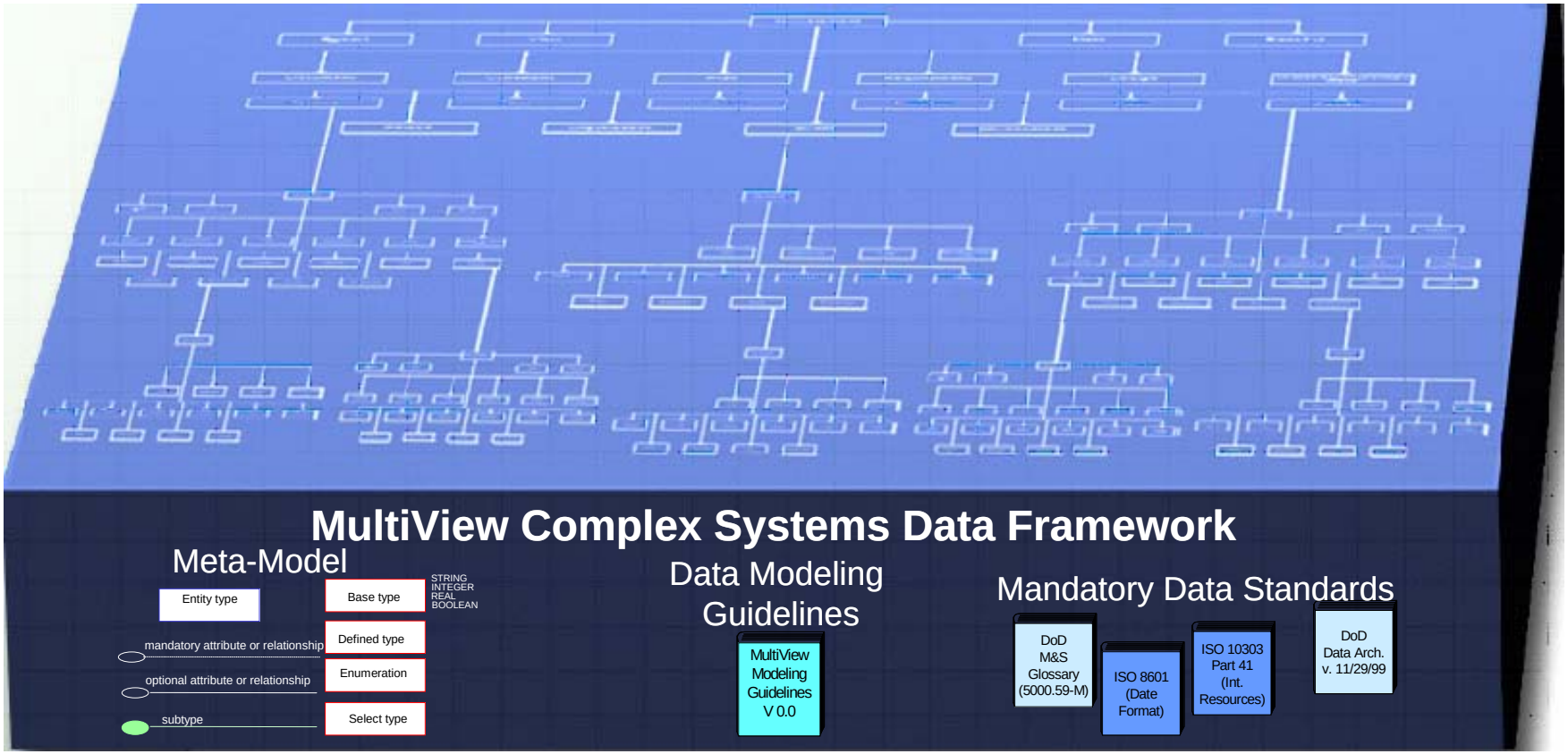

- Complex Systems Data Framework
  - Set data representation boundaries
  - Identify & enforce schema rules
- Initial DoD Data Schema Subset
  - Validate framework
  - Pilot Program sample application

A Solid, Standards-Based Foundation Paves the Way for Effective Transition

NCEE Data / Information Assessment Applications

NCEE Activities Highlight
NCEE Supports POM-04 and PR-05

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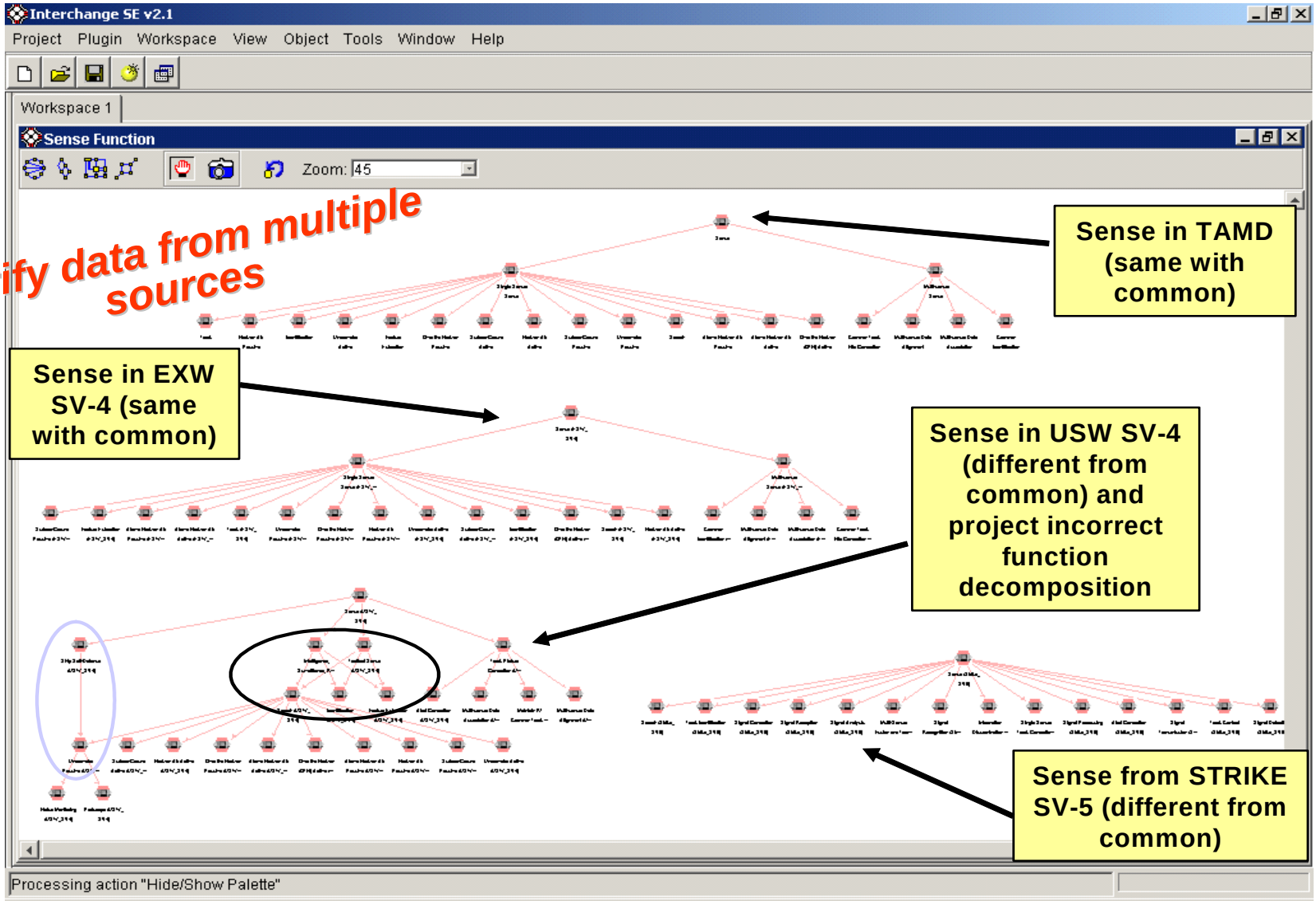

NCEE Activities Highlight
NCEE Supports POM-04 and PR-05

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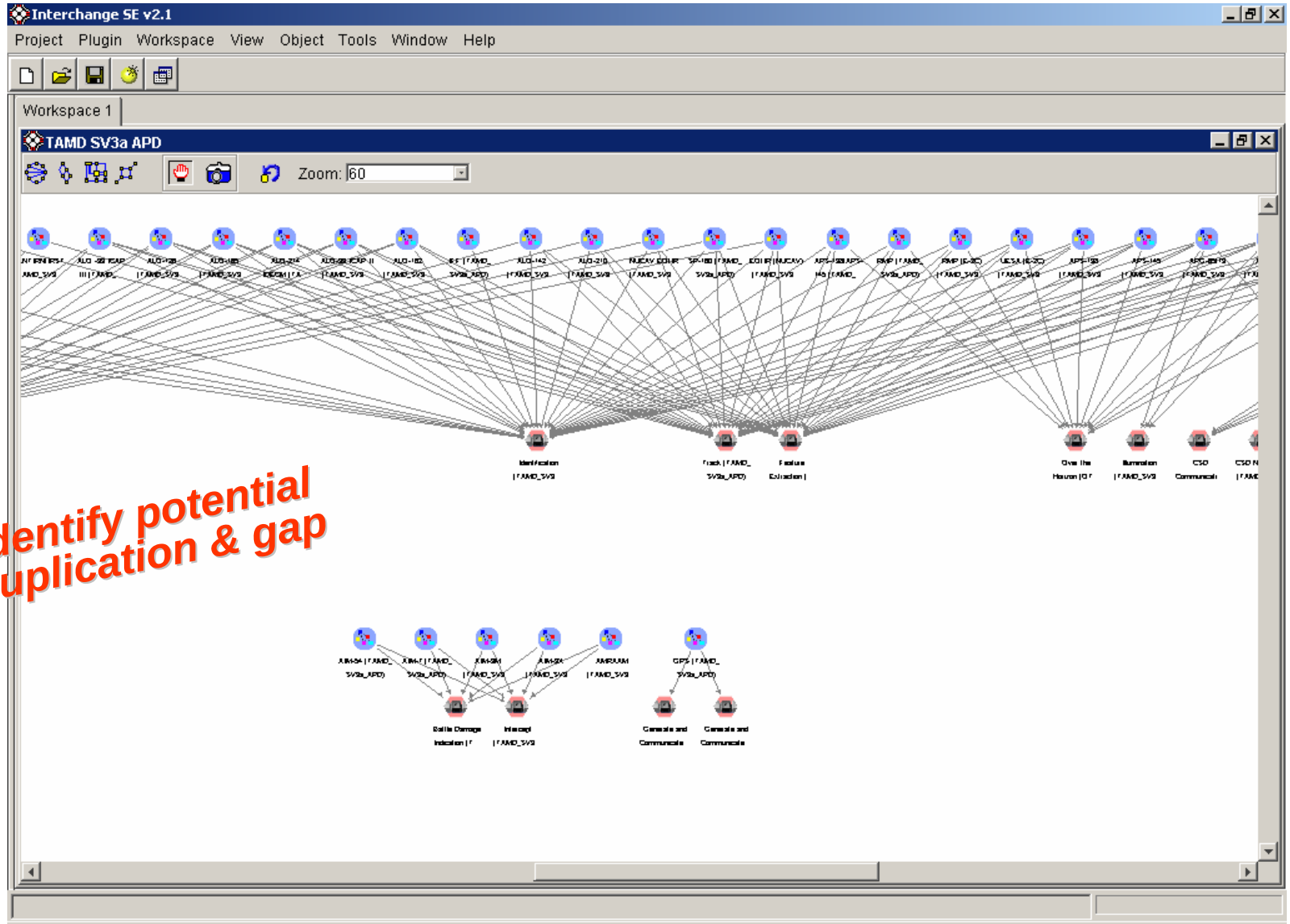

Identify potential duplication & gap

NCEE Activities Highlight
NCEE Supports POM-04 and PR-05

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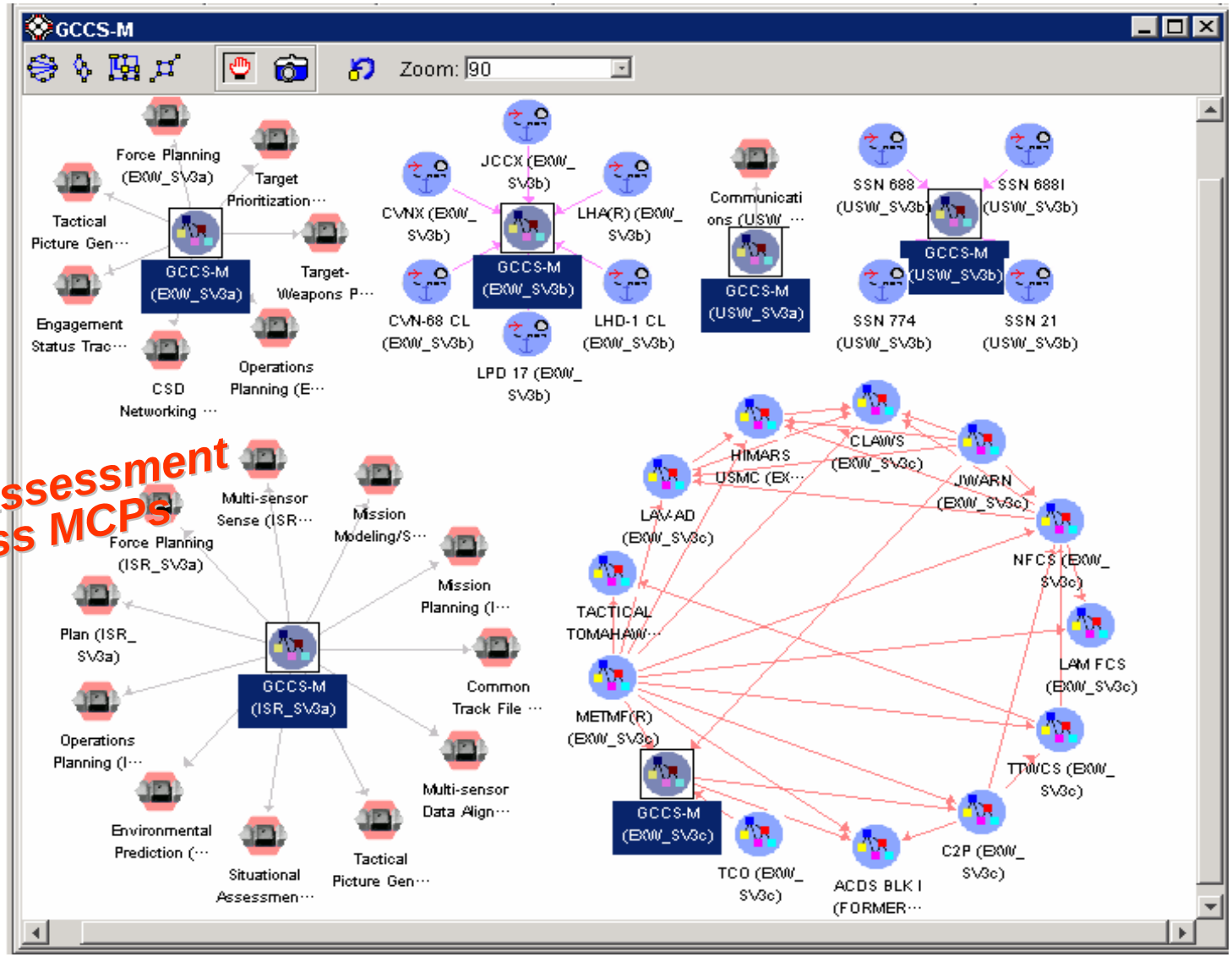
Impact assessment across MCPs



NCEE Activities Highlight
NCEE Supports POM-04 and PR-05

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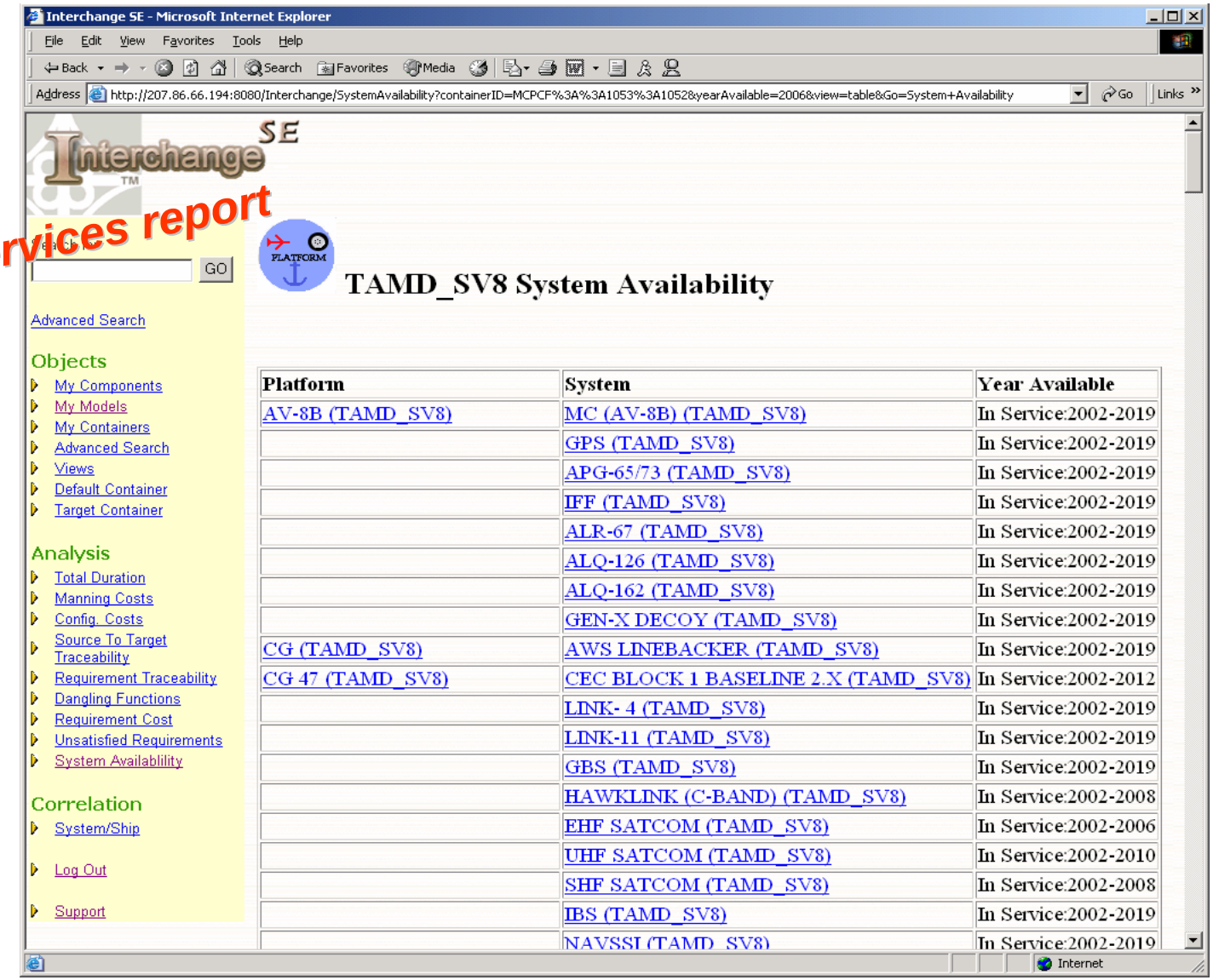
Web services report



NCEE Ongoing Collaboration Efforts

NCEE – Open Architecture Collaboration

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- Support the establishment of a neutral environment that could be used to enable long and short-term OA business areas
- Provide software reuse framework for OA integration
  - Open Ship Gridlock System/Automatic Correlation (SGS/AC) & Aircraft Carrier Tactical Support Center (CV/TSC) software reuse example problem
- Provide web access capabilities for OAET stakeholders to interface with industry
  - OA information and “Questions to the OAET”
  - OA repository for depositing information regarding vendor proposed OA solutions
- Provide workspaces and engineering tool environment for OA Surface Domain
  - Explore cross programs review process
  - Explore OA-FIBL alignment process

Naval Collaborative Engineering Environment:
FORCEnet Implementation Toolset Initiative

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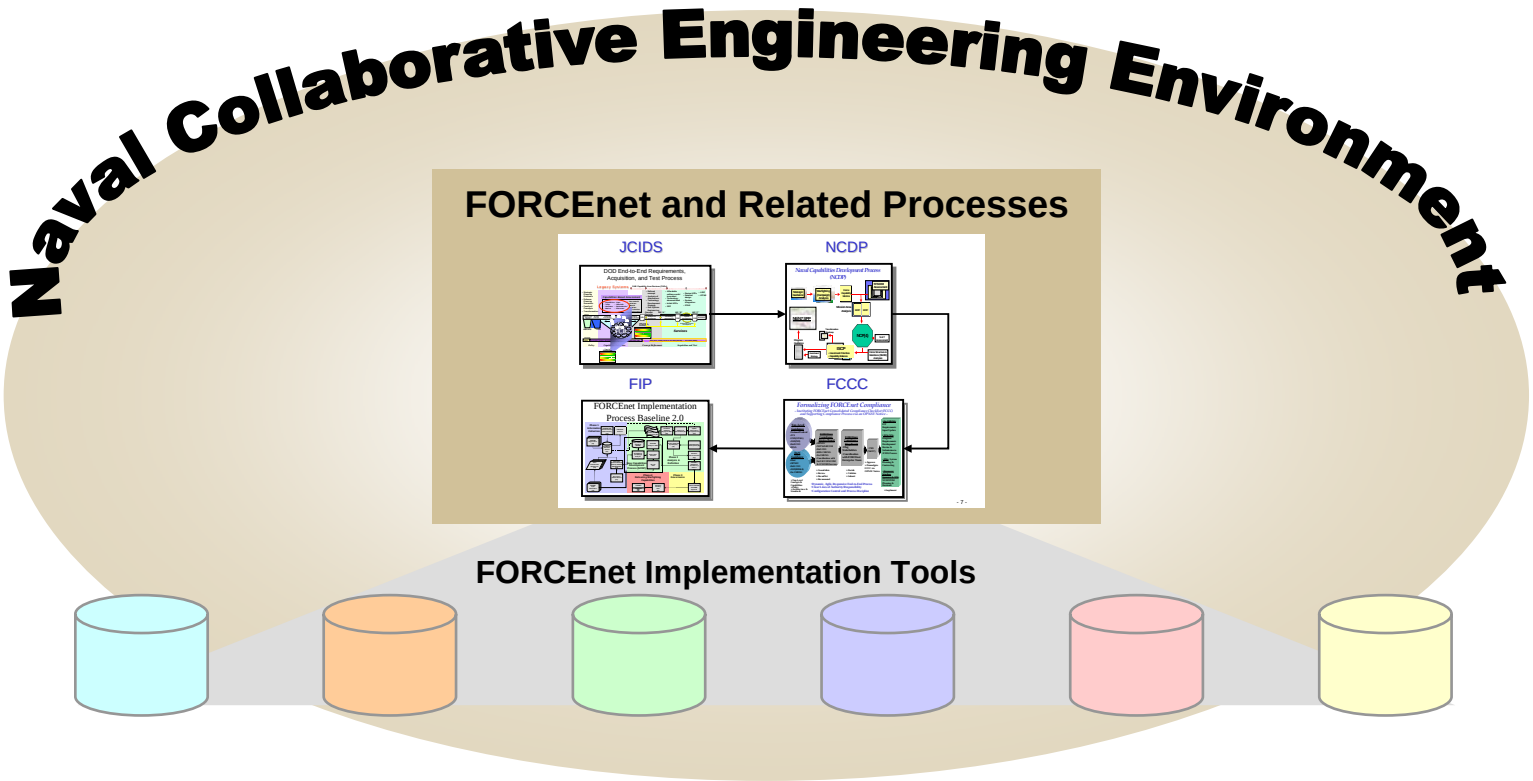

FIT is an Enterprise Requirements Management Initiative enabled Through the NCEE and Designed to Support Various Naval Processes and to Maximize Use of Existing IM / IT Infrastructure

From FCCC-FIBL Spiral 2 brief, 1 June 05, by Dan Green

NCEE – FIT/FIBL Alignment

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- Two technical exchange meetings were conducted between CHENG-NCEE and SPAWAR05
- Organizations informed each other on existing capabilities, requirements, and alignment objective
- Establishing pilot project to define the processes, data elements, and capabilities improvement for FIT/FIBL
  - E2C is current candidate
  - Pilot program plan is under development
- Identify additional areas of interest for alignment
  - Policy Decomposition Prototype implementation approach as candidate to support FCCC decomposition and traceability
  - Working in concert with SPG director

Other Collaboration Efforts

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- NCEE – NETWARCOM
  - Establishing workspaces to provide collaborative capabilities for NETWARCOM IPTs
  - Engaged with NETWARCOM in technology transition. Utilization of Interchange plugin (System Architect and CADM XML) to support the integration and dissemination of operational architecture data is of interest to NETWARCOM
- NCEE – TTCP
  - Defined Pilot Project to understand Coalition Fires process
  - Aligned cross-countries operational activity lists
  - Presented Coalition Collaborative Engineering Environment at ASNE conference
  - Published in INSIGHT Magazine

Points of Contact

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